WO 2005/014292 PCT/GB2004/003109

- 7 -

CLAIMS

1. A method of forming a nozzle plate component for a droplet deposition apparatus, said method comprising the steps:

forming a body of a first material said body having a periphery, forming a plate of second material around said body such that the plate extends around at least a portion of said periphery of said body; and forming a nozzle extending through said body.

- 2. A method according to Claim 1, wherein said plate is electroformed.
- 3. A method according to Claim 1 or Claim 2, wherein said first material is formed as a layer on a substrate said layer being processed to form a plurality of bodies.
- 4. A method according to Claim 3, wherein said plurality of bodies are arranged in an array corresponding with the desired array of nozzles in the completed nozzle plate.
- 5. A method according to Claim 3 or Claim 4, wherein said processing step comprises the steps of masking said layer, exposing said layer to radiation and removing portions of said layer.
- 6. A method according to any one of the preceding claims, wherein said nozzle is formed by ablating through said body.

WO 2005/014292 PCT/GB2004/003109

-8-

- 7. A method according to any one of the preceding claims, wherein said first material is a plastics material.
- 8. A method according to any one of the preceding claims, wherein said second material is a metal.
- 9. A method according to any one of the preceding claims, wherein said first material is a photoresist and preferably a negative photoresist.
- 10. A method according to one any of the preceding claims, wherein the said plate is attached to a droplet deposition apparatus before said nozzle is formed.
- 11. A method of forming a nozzle plate for droplet deposition apparatus, the nozzle plate defining a nozzle plate plane and comprising a plate having at least one nozzle plate layer and a plurality of nozzles, each nozzle extending through polymeric material located within an aperture within the nozzle plate, the method being characterised by the steps of defining a plurality of distinct bodies of polymeric material distributed over the nozzle plate plane and forming at least one metal nozzle plate layer by electroforming around said bodies of polymeric material.
- 12. A method according to Claim 11, wherein the nozzle plate comprises a first nozzle plate layer containing said apertures and the polymeric material located within said apertures through which the nozzles extend, and a second nozzle plate layer comprising a guard layer.
- 13. A method according to Claim 12, wherein said guard layer comprises, for each nozzle, a guard aperture which is of a dimension in the nozzle plane larger than that of the nozzle and smaller than that of the polymeric material through which the nozzle extends.

- 14. A method according to Claim 12 or Claim 13, wherein said second nozzle plate layer is formed by the steps of defining a plurality of distinct bodies of guard layer polymeric material distributed over the first nozzle plate layer; forming said guard layer by electroforming around said bodies of polymeric material and removing said guard layer polymeric material.
- 15. A method according to Claim 14, wherein said guard layer polymeric material is removed prior to formation of nozzles.
- 16. A method according to Claim 14, wherein nozzles are formed by ablation prior to removal of said guard layer polymeric material.
- 17. A method according to Claim 11, wherein the nozzle plate comprises a first nozzle plate layer containing said apertures and the polymeric material located within said apertures through which the nozzles extend, and a second nozzle plate layer comprising a connecting tracks layer.
- 18. A method of forming a nozzle plate component for a droplet deposition apparatus, said method comprising the steps of:

forming a layer of first photoresist material on a substrate;

selectively exposing and removing photoresist material to define on the substrate an array of distinct bodies of said first material;

forming a first plate of metal around said bodies, so as to form a metal nozzle plate having apertures, each aperture containing a body of said first material; and

forming a nozzle extending through each body.

WO 2005/014292 PCT/GB2004/003109

- 10 -

- 19. A method according to Claim 18, further comprising the step of depositing a metallic layer on the substrate prior to forming of the layer of first photoresist material, said first plate of metal being electroformed with said metallic layer serving as a seed layer.
- 20. A method according to Claim 18 or Claim 19, further comprising the steps of: forming a layer of second photoresist material on the first plate of metal; selectively exposing and removing photoresist material to define an array of distinct bodies of said second material aligned respectively with the bodies of said first photoresist material;

forming a second plate of metal around said bodies of second material; and removing said second material to form apertures in the guard plate respectively aligned with the nozzles.